No. 655,086. Patented July 31, 1900.

H. H. HUNTER.

ROTARY GRATE.

(Application filed Dec. 11, 1899.)

(No Model.)

Fig. 1.

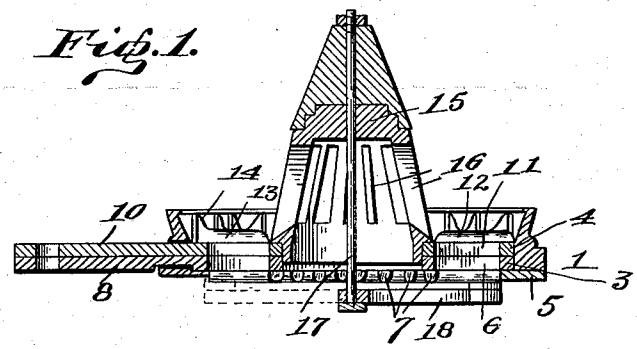


Fig. 2.

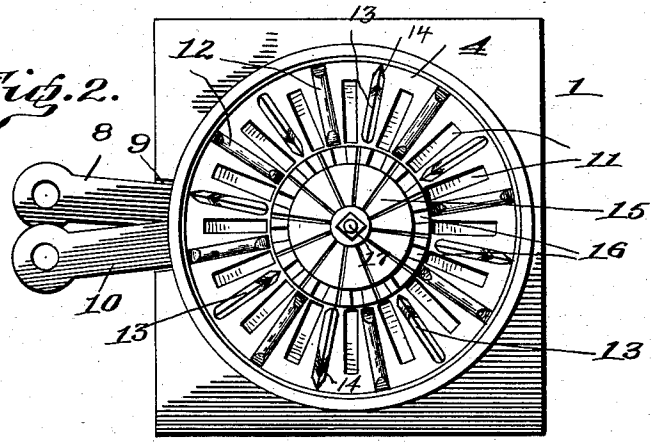
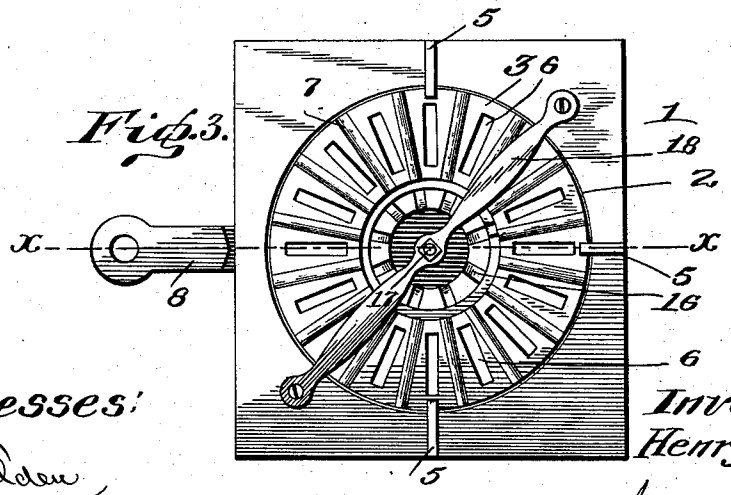


Fig. 3.



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HENRY H. HUNTER, OF BERKELEY SPRINGS, WEST VIRGINIA.

ROTARY GRATE.

SPECIFICATION forming part of Letters Patent No. 655,086, dated July 31, 1900.

Application filed December 11, 1899. Serial No. 739,956. (No model.)

To all whom it may concern:

Be it known that I, HENRY H. HUNTER, a citizen of the United States, residing at Berkeley Springs, in the county of Morgan and State of West Virginia, have invented new and useful Improvements in Rotary Grates, of which the following is a specification.

My invention relates to rotary grates for stoves, the object of the same being to provide means whereby comminuted particles or fine grades of anthracite coal may be burned satisfactorily and the heat thereof utilized. It is a well-known fact that the finer the grade of the coal the greater the draft that is necessary in order to effectually consume the same. With the ordinary grates if the openings therethrough are of large enough size to furnish sufficient draft they are too large to support the fine particles of coal. The result is that these fine grades of coal cannot be satisfactorily burned, because in the one case there is insufficient draft and in the other case there is a danger that the bed of coals will fall entirely through the grate into the ash-pan without being consumed. One of the methods which has been devised for overcoming this objection is to cover the grate, which is provided with openings of sufficient size, with large coal and introduce the smaller grade of coal onto the top of this large coal. It has been found, however, that even when this has been done the small coal will fall down into the grate as soon as the large coal, which originally bridged across these openings, has burned out.

By my invention I provide means whereby the size of the openings through the grate may be controlled in order to adapt the same for use with either large or small coal and also provide means whereby a large continuous draft may be supplied to the center of the bed of coals at all times.

The invention consists of the features and details of construction and combinations of parts which will be hereinafter more fully described and claimed.

In the drawings forming part of this specification, Figure 1 is a vertical central section of my improved grate, taken on the line x x, Fig. 3. Fig. 2 is a top plan view of the same, and Fig. 3 is a bottom plan view showing the grate-sections in different relative positions. Like reference-numerals indicate like parts in the different views.

Bolted or otherwise secured to the stove-casing adjacent to the lower end thereof is a horizontal partition or diaphragm 1, provided with a large central circular opening 2. In this opening fits and is adapted to move my improved rotary grate. The same consists of two annular members 3 and 4, respectively, the lower member 3 being supported with provision for rotary movement upon inwardly-extending lugs or projections 5 5. It is also provided with a series of radially-extending elongated slots 6 6, between which are secured the depending bracing and strengthening ribs 7. On one side the section 3 has secured to or formed integral with it a laterally-projecting arm 8, which constitutes a handle and lies within a recess or cut-away portion 9 in the upper surface of the partition 1. The other annular section 4 of my improved grate is disposed upon the upper side of the section 3, in close contact therewith, and is provided with a laterally-extending arm or handle 10, which also fits and moves within the recess or cut-away portion 9, heretofore referred to. The section 4 is further provided with a series of radially-extending elongated slots 11 11, which are adapted to register with the slots 6 6 in the section 3 when the handles 8 and 10 of the two sections are in alinement one with the other. Between the slots 11 and secured to the upper side of the section 4 are radially-extending ribs 12 13. The ribs 12 have their upper surfaces parallel with the upper surface of the section 4 and are arranged alternately between the ribs 13. The latter ribs are formed with upwardly-extending curved projections 14 thereon, the projections on the alternate ribs 13 being formed on opposite ends thereof—that is, the projection 14 on one of the ribs 13 will be located at the inner end thereof and on the adjacent rib 13 will be on the outer end thereof. Secured to the section 4 of the grate and extending upwardly therefrom is a hollow substantially cone-shaped dome 15, provided with a series of elongated slots 16 at its lower end, arranged opposite the spaces between the slots 11 in the section 4. Said section 4 is held in place with provision for rotary movement by means of a central axial rod 17, se-

cured at its lower end to the cross-bar 18, attached to the under side of the diaphragm or partition 1.

From the foregoing description it will be noted that the two sections 3 and 4 of my improved grate are capable of rotary movement either together or independently of each other. By moving one or the other independently the size of the passages through the slots 11 and 6 may be controlled, so as to adapt the same for use with coal of different fineness. When the handles 8 and 10 of the two sections are in line with each other, the slots 11 and 6 register one with the other, and the draft, evenly divided throughout the entire surface of the grate, is supplied to the fuel through the slots 6 and 11 and also through the slots 16 in the cone-shaped dome 15. The draft through the slots 16 is always unobstructed, so that no matter what the relative positions of the sections 3 and 4 may be a draft to support the combustion is supplied. In starting a fire with culm or finely-divided particles of coal it is found desirable to move the sections 3 and 4 of the grate so that the slots or passages therethrough are completely closed, and the entire draft is then supplied through the slots 16. When it is desired to shake the grate, the handles 8 and 10 are grasped by the hand and both sections 3 and 4 rocked simultaneously. The peculiar shape and arrangement of the ribs 12 and 13, with the projections 14 on the latter, serve to remove or break up any clinkers that may be upon the upper surface of the section 4 and cause the same to pass down through the passages in the grate into the ash-pan below. They also serve to generally change the position of the fuel.

By reason of the fact, as stated above, that the dome 15 is secured to the upper section 4 of the grate it will be observed that the rotary movement of said section, either with the section 3 or independently thereof, will cause the rotation of the dome 15 therewith, with the consequent changing of position of the bed of coals resting upon said upper section 4. During this movement both the section 4 and the dome 15, secured thereto, act upon the coals to stir and rearrange the same.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A grate comprising two rotary sections mounted one upon the other and provided with slots adapted to register one with the other, and a substantially cone-shaped dome secured to the upper of said sections and provided with a series of slots in the sides thereof for the passage of air above said sections.

2. A grate comprising two rotary sections disposed one upon the other and provided with elongated slots adapted to register with each other, a substantially cone-shaped dome on the upper of said sections, provided with a series of slots or passages for supplying air above said sections, and means for moving said sections independently for controlling the size of the passages through said slots.

3. A grate comprising two annular rotary sections disposed one upon the other, and provided with elongated slots adapted to register with each other, a hollow substantially cone-shaped dome secured to the upper of said sections and provided with a series of slots or openings for supplying air above said sections, and means for moving said sections independently of each other for controlling the size of the passages therethrough.

4. The combination with a diaphragm or partition having a central circular opening therein, of a grate comprising two annular sections disposed one upon the other, fitting and adapted to rotate in said opening and provided with radially-extending slots adapted to register with each other, laterally-extending arms on each of said sections constituting handles therefor, by means of which said sections may be rotated simultaneously or moved independently, and a hollow substantially cone-shaped dome secured to the upper of said sections and provided with a series of slots or openings in the sides thereof for the supply of air above said sections.

5. In a grate, two annular sections disposed one upon the other and provided with slots adapted to register with each other, a substantially cone-shaped dome secured to the upper of said sections and provided with a series of slots or openings for supplying air above said sections, and radially-extending ribs 12, 13 secured to the top surface of the upper of said sections between the slots therein, the ribs 12 having their upper surfaces parallel with the section to which they are secured and arranged alternately between the ribs 13, and the latter having upwardly-extending curved projections 14 arranged alternately at opposite ends of said ribs 13.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HENRY H. HUNTER.

Witnesses:
CHAS. H. SHOCKEY,
JAS. F. SMITH.